



The Eyepiece

SW FL Astronomical Society, Inc.
3236 Forum Blvd #1160
Fort Myers, FL 33905



Editor - Mike Jensen

I love doing the newsletters in late Winter/Early Spring because this is when we astrophotographers get the most images here in Florida. This edition has so many great images from our spectacular astrophotographers. Are you kidding me, 22 pages of astro photos! Our most ever! My sincere thanks to everyone who contributes to the SIG group.

IC 443 - The Jellyfish Nebula by Mike Jensen

Last Call To Pay Your 2025 Membership Dues

Once again this year we offer a very affordable \$30 family membership. To pay online, [please click this link](#). You can also pay by check and mail it to:
Southwest Florida Astronomical Society
3236 Forum Blvd #1160
Fort Myers, FL 33905

Or pay in cash or check at the March. 6th meeting.

Table of Contents

| | |
|--|----|
| Monthly Meetings | 2 |
| Astro Sig Schedule | 2 |
| 2025 | 2 |
| President's Message | 3 |
| GUEST SPEAKER PRESENTATIONS SERIES | 3 |
| Club Officers & Positions | 3 |
| SWFAS Community Outreach | 4 |
| Martian moon to form Red Planet rings? | 10 |
| 14 things new stargazers should know | 12 |
| What's Going On in the SIG Group? | 16 |
| Astro SIG Images | 17 |
| February Meeting Minutes | 39 |

Monthly Meetings

Our monthly meetings are held on the **first Thursday of each month**. The meetings begin at 7:00pm.

Here is the Zoom link:

<https://zoom.us/j/97435302223?pwd=Y3A2dlk2Q3M2eG1ENTJuOXp-4TEZEQT09>

Passcode: 874185

Each meeting is usually a combined live and Zoom meeting.

The in person meeting is held at:
Calusa Nature Center/Planetarium
3450 Ortiz Ave,
Fort Myers, FL 33905



Below are the next three dates for the meetings of 2025:

March 6, 2025

April 3, 2025

May 1, 2025

2025 Observatory
& Solar Dates

Astro Sig Schedule
2025

All Meetings at 7:00pm

March 18, 2025

April 15, 2025

May 18, 2025

Below are the new schedules for the FSW Observatory and the Solar Observing events for the coming school year. Note that the observatory events will be the fourth Friday of each month, and the Solar observing events will be the second Saturday of each month at the indicated parks in Charlotte County.



ASTRO SIG MEETING ZOOM LINK
NEW LINK

<https://zoom.us/j/95463483537?pwd=6EprbaLEuVacLvRgBTVxehkT-Gh1WSP.1>

Meeting ID: 954 6348 3537

Passcode: 052283

FSW Observatory

Mar 28, 2025

Apr 25, 2025

May 23, 2025

Solar Observing

Mar 8, 2025

Apr 12, 2025

May 10, 2025

Park

Ponce deLeon

Bayshore Live Oak

Gilchrist

President's Message

Brian Risley

STEMtastic was fantastic. Weather was good, the sun had nice prominences and sunspots and I had some great help. Tim Lilly, Pat Agnew and Tony Buscemi came out. We had good crowds and figure 400+ stopped by our setup out of a total crowd estimated at 3500.

The Burrowing Owl Festival was another huge success. Again, Tim Lilly and Tony Buscemi came out to help. No idea on just how many people stopped by our display, but we also pushed the Star Party on Feb 28th. Clouds were not too big a problem until about 1pm. Not sure of total crowd size but it was in the thousands.

Coming up Friday the 28th is the Rotary Park Star Party. Weather is hard to tell as I write this. I will be there by 5pm, we setup on the hill to the east of the main building (there is a swing gate that should be unlocked so you can bring your vehicle in). Be careful going up the hill to park. I will have extension cords if you need AC power. We expect hundreds of people, so even if you don't have a scope, there will be need for people to man scopes and provide breaks.

There will be one more Big Cypress event on March 29th at 8:30. Our next Seahawk Park star party is March 22nd at sunset. March 8th is solar observing hopefully at Ponce de Leon park 9-noon. March 28th is observing at FSW Moore observatory in Punta Gorda.

GUEST SPEAKER PRESENTATIONS SERIES

Here's our lineup for the "SWFAS Guest Speaker Presentations" series of talks. These will cover astronomical science and space exploration along with practical astronomy and astrophotography talks by various subject matter experts. We are lining up prominent scientists and researchers to explain the science and technology behind the exciting discoveries being made in recent years in astronomy.

The following presentations are already scheduled and we will be firming up talks in 2025 on a month-to-month basis.: **Jonathan Talbot will speak at our March 6th meeting on "Tools You Need to know When Using Pixinsight".**



Club Officers & Positions

President/Equipment
Brian Risley
swfaspres@gmail.com
239-464-0366

Vice President/
Newsletter/Website/Astro SIG
Mike Jensen
info@jensenone.com
913-304-0495

Secretary
Dan Dannenhauer
gawomp@aol.com
239-850-7111

Treasurer/AL Coordinator
John MacLean
john.maclean.arcs1969@gmail.com
239-707-3365

Charlotte Event Coordinators
Tony Heiner
verahei@aol.com
941-457-9700

Thomas Segur
tsegur479@comcast.net
941-249-8726

Big Cypress Viewing Coordinator
Mike Jensen
info@jensenone.com
913-304-0495

FSW Punta Gorda Moore Observatory
Director Thomas Segur
tsegur479@comcast.net
941-249-8726

Club Librarian
Maria Berni
239-940-2935

Club Historian
Danny Secary
asecary@gmail.com
239-470-4764

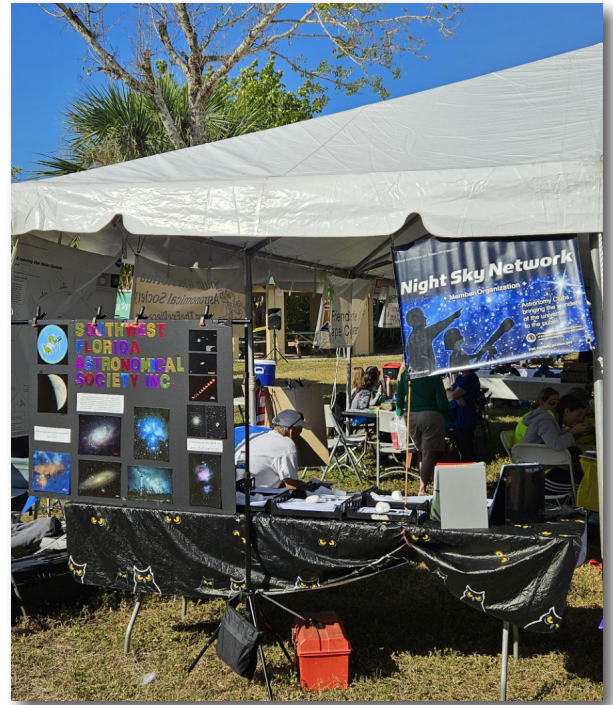
SWFAS Community Outreach

Astronomy clubs play a vital role in promoting interest and understanding of the cosmos within their communities through outreach programs. Our club is composed of passionate individuals who not only love stargazing and celestial phenomena but also recognize the importance of sharing this knowledge with others. Community outreach initiatives by these clubs can greatly enhance public interest in science, technology, engineering, and mathematics (STEM) fields, particularly for young people.

One way that astronomy clubs engage with their communities is through public star parties and community festivals. These events invite people of all ages to gather in open spaces where club members set up telescopes to observe celestial objects such as the Moon, planets, and distant galaxies. During these gatherings, club members share their knowledge, explain interesting facts about the objects being observed, and answer any questions attendees may have. This hands-on experience encourages curiosity and provides a tangible connection to the universe that classroom lectures often cannot convey.

In addition to star parties, many astronomy clubs host informative lectures and presentations during their general meetings, or outside of them. These gatherings can feature guest speakers, such as professional astronomers or experienced amateur astronomers, who discuss various topics ranging from the latest discoveries in space science to the history of astronomy. By promoting these events in local schools and community centers, clubs not only educate attendees but also inspire them to explore further and potentially pursue careers in STEM fields.

Collaborations with local schools and educational organizations further enhance the outreach efforts of astronomy clubs. Many clubs partner with teachers to create engaging astronomy-related lesson plans, workshops,





and even hands-on activities that inspire students. Clubs can also offer field trips to observatories or planetariums, providing students with firsthand experiences that supplement classroom learning. Such partnerships have the power to ignite a passion for science in young minds, fostering critical thinking and sparking lifelong interests in astronomy and space exploration.

Moreover, some astronomy clubs implement programs specifically aimed at underrepresented groups in STEM, such as women, minorities, and low-income communities. By organizing special events, scholarships, or mentorship opportunities, these clubs can help bridge gaps in access to scientific education and resources. These inclusive outreach strategies ensure that the wonder of the universe is accessible to all, encouraging diversity in a field that benefits from a variety of perspectives.

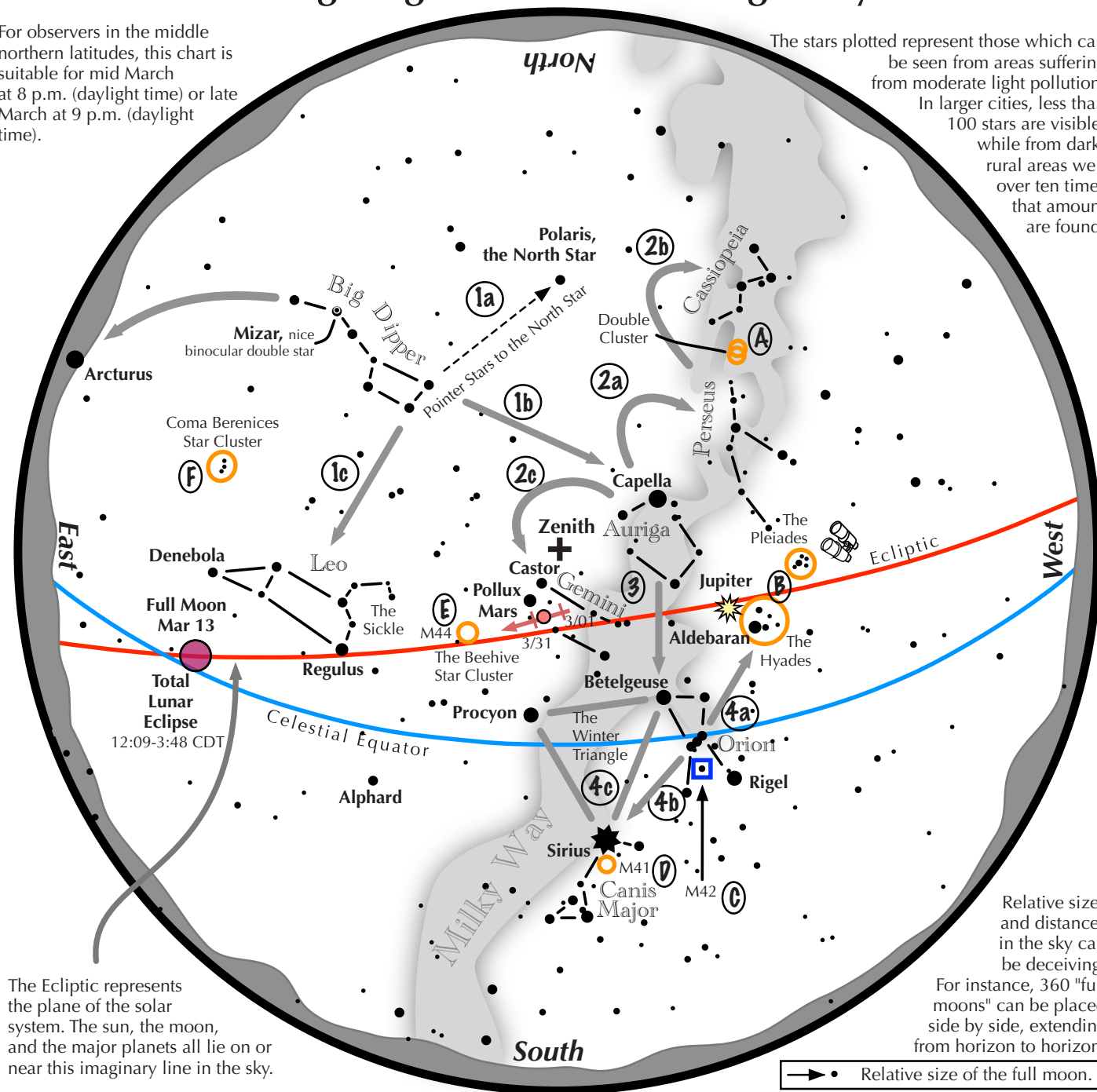
Social media and online platforms have also become crucial tools for community outreach. Astronomy clubs utilize these platforms to share events, tips for stargazing, and fascinating astronomical discoveries. Virtual meetings and online workshops have become popular, particularly through the pandemic, allowing clubs to reach wider audiences beyond their local communities. By leveraging technology, astronomy clubs can engage with eager learners from across the globe, sharing their passion for the night sky with even more people.

Astronomy clubs play an integral role in promoting awareness and enthusiasm for astronomy through comprehensive community outreach programs. Whether through public events, partnerships with schools, specialized initiatives for underrepresented groups, or the use of online platforms, these clubs strive to make astronomy accessible and engaging for everyone. As they continue to inspire awe and curiosity about the universe, they help cultivate a informed citizenry that appreciates the wonders of the cosmos and the importance of science in our daily lives.

Our thanks to Brian, Tom and our outreach volunteers for their efforts in engaging our community.

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

Navigating the March night sky: Simply start with what you know or with what you can easily find.

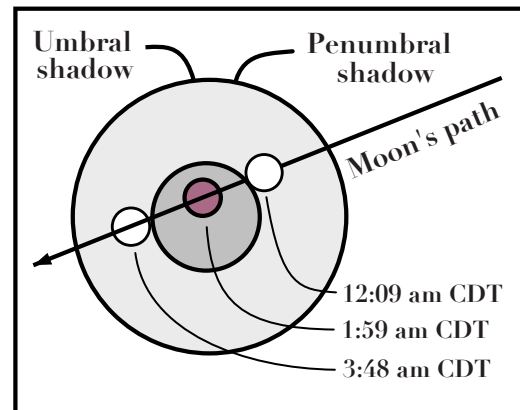
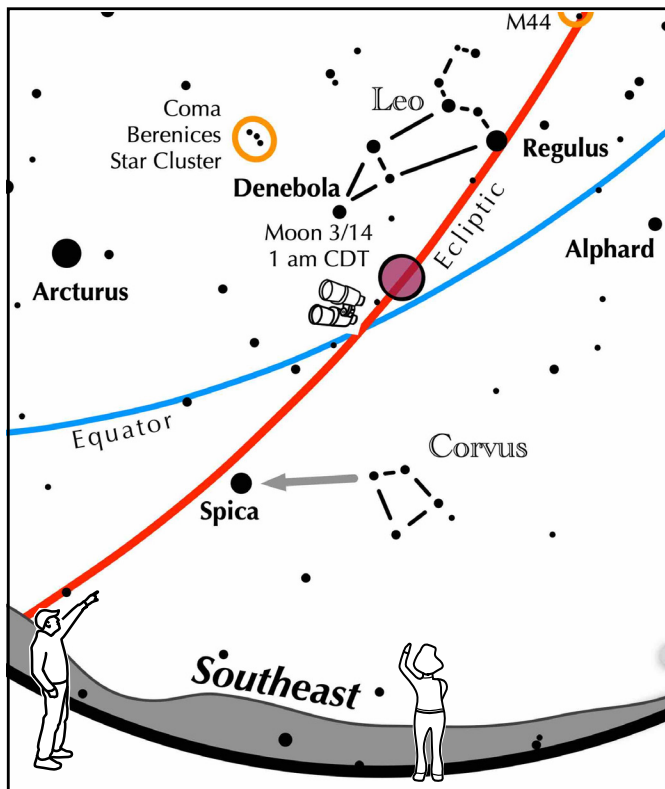
- 1** Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
- 2** From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3** Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4** Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

Binocular Highlights

A: Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.



If you can observe only one celestial event in the evening this March, see this one.



The Moon slides through a total eclipse

In the hours just after midnight on March 14, the brilliant full moon slides into Earth's shadow.

- Even though the partial umbral eclipse begins at 12:09 am CDT, darkening might not be noticed for another 5 minutes.
- When totality is reached, the full moon's brilliance is gone, allowing the stars to appear. Can you see that the moon lies mid-way between Regulus to the upper right and Spica to the lower left?
- At mid eclipse, what color is the moon? How red is it?
- During the partial phases, can you notice that the shadow's edge is not straight, but curved?



**View to the southeast
on March 14
at 1 am CDT**



Image by Brian Risley
2025 Stemtastic



The ABCs of Stargazing



How would you describe to a friend the size of a sky object, its distance from a particular star, its brightness, or its location on the celestial dome?

The ABCs of stargazing allow you to do just that!



"A" is for angular size and distance

Be sure to remember these handy references when discussing size or distance in the sky:

- The moon spans $1/2^\circ$. It would take 360 "full moons" to reach from horizon to horizon!
- The apparent width of the tip of your index finger on your extended arm is less than 2° .
- The width of the bowl of the Big Dipper is 5° and the bowl's length is 10° .
- Your clenched fist on your fully extended arm is 10° from side to side.
- Your outstretched hand on your extended arm is 15° from the tip of the pinky to the tip of the thumb.



Width of the Full Moon $1/2^\circ$

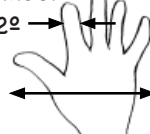
Your fist

10°



Your index finger

2°



Your hand 15°

The Big Dipper



Six of the seven stars of the Big Dipper are of the 2nd magnitude.

"B" is for brightness

Skywatchers use the "magnitude" scale to describe an object's brightness. Don't be confused by the reverse nature of the scale: The brighter the object, the smaller the magnitude. Objects with negative magnitudes are very bright, indeed!

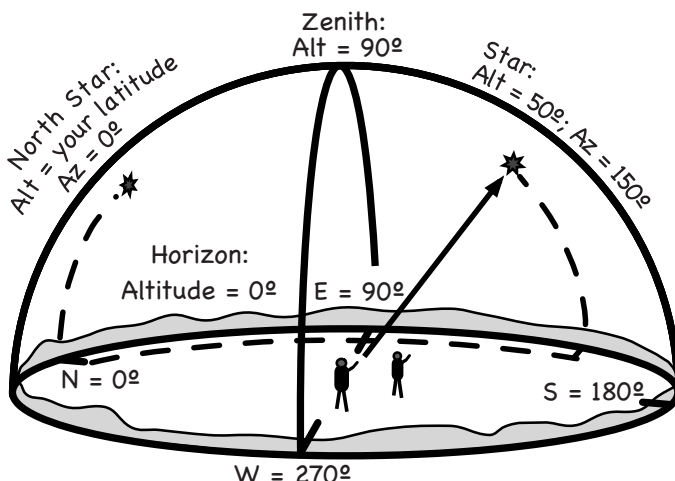
Polaris, the North Star, always has an azimuth of 0° and has an altitude above the northern horizon matching the latitude of the observer.

Mag. Object

| | |
|------|---|
| -26 | Sun (never look at the sun!) |
| -12 | Full moon |
| -4 | Venus |
| -2.5 | Jupiter at its brightest |
| -1.5 | Sirius, the brightest star in the night |
| 0 | Arcturus, Vega, Capella, Saturn |
| +1 | Pollux, Regulus, Altair |
| +2 | Six stars of the Big Dipper, North Star |
| +6 | The faintest star seen by unaided eyes |

"C" is for coordinates

Stargazers often use the simple, but descriptive altitude-azimuth (alt-az) system to locate objects in the sky.



Azimuth coordinate: Altitude coordinate:

North is 0°

Horizon is 0°

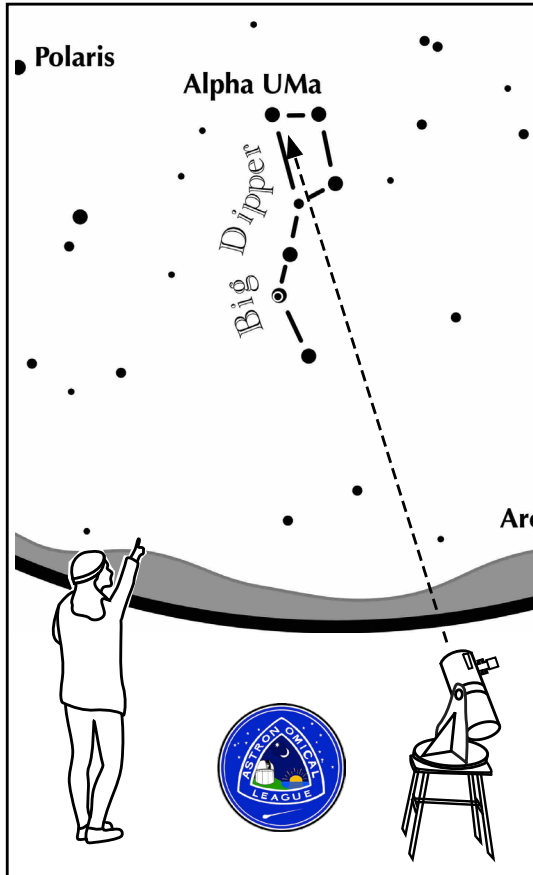
East is 90°

Zenith is 90°

South is 180°

West is 270°

ASTRONOMICAL LEAGUE Double Star Activity



Other Suns: Alpha Ursae Majoris

How to find Alpha Ursae Majoris on a March evening

Face northeast. Look for the Big Dipper standing upright on its handle. Alpha is the star on the upper left corner of the bowl.

Alpha UMa

A-B separation: 381 sec

A magnitude: 2.0

B magnitude: 7.0

Position Angle: 204°

Colors:

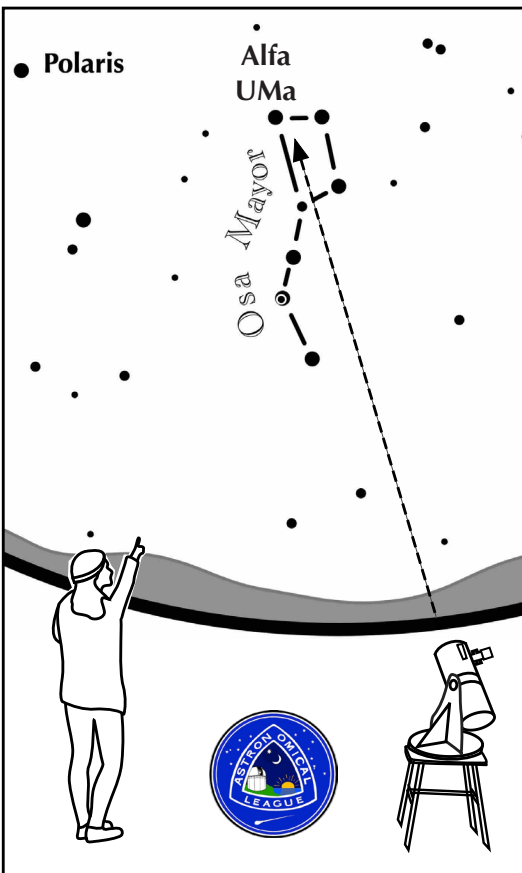
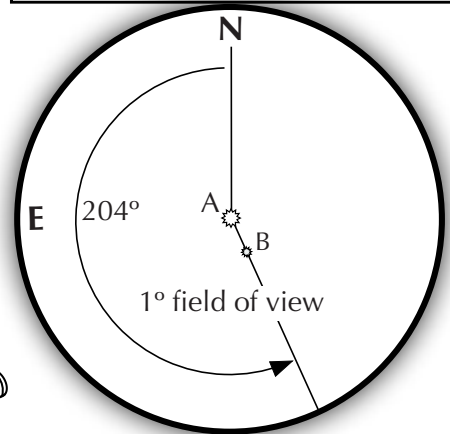
orange

dark orange

Try binoculars!



Suggested magnification: >20x
Suggested aperture: >3 inches



Otros Soles: Alfa Ursae Majoris

Cómo encontrar a Alpha Ursae Majoris en una tarde de Marzo

Mire al noreste. Busque la Osa Mayor de pie sobre su mango. Alfa es la estrella en la esquina superior izquierda del Cazo.

Alfa UMa

A-B separación: 381 sec

A magnitud: 2.0

B magnitud: 7.0

PA: 204°

Colores:

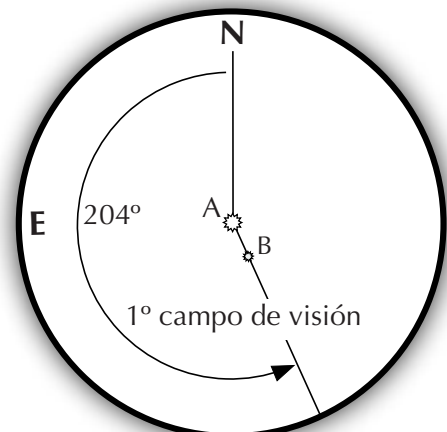
naranja

roja oscura

Un objeto binocular!



Ampliación sugerida: >20x,
Apertura sugerida: >75 mm



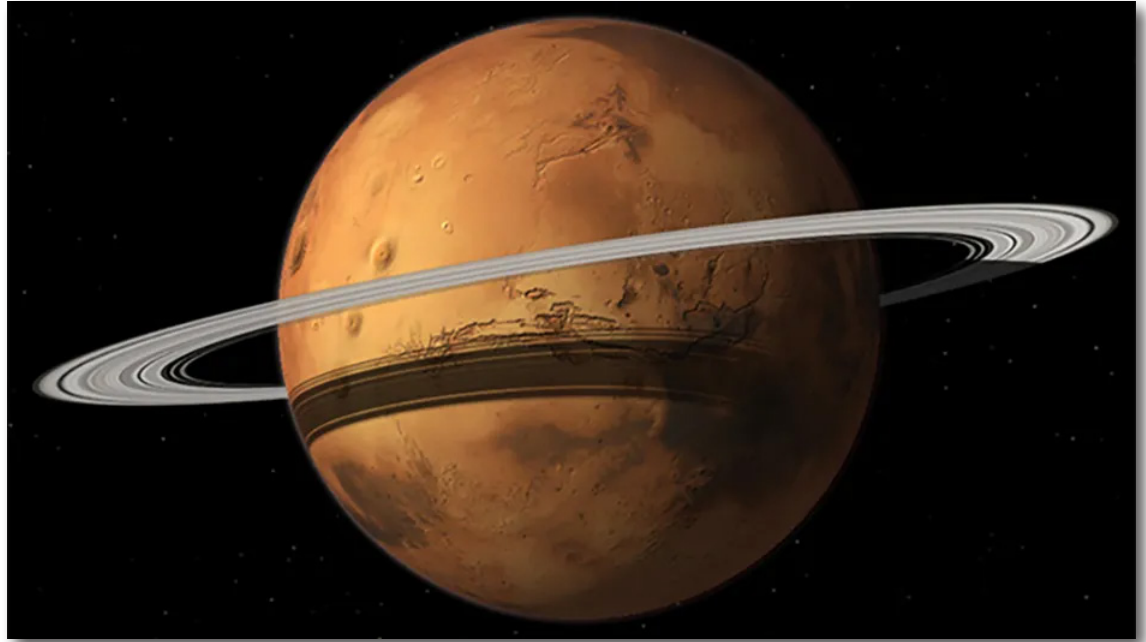
Martian moon to form Red Planet rings?

Mars's moon Phobos is being pulled towards its host in a process that could eventually tear it apart and create rings around the Red Planet.

[From BBC Sky At Night](#)

Mars's moon Phobos is being pulled towards its host in a process that could eventually tear it apart and create rings around the Red Planet.

Can you imagine Mars with rings? That could be the case within 30–50 million years, as planetary scientists say the planet's moon Phobos is spiralling towards the Red Planet.



Phobos is one of Mars's two moons – the other being Deimos – and orbits about 3,700 miles (6,000 kilometres) above the surface of the Red Planet.

It completes an orbit of Mars once every hours and 39 minutes, according to the European Space Agency, but that is slowly changing.

Phobos's orbit is 'decaying', meaning the moon is slowly spiralling inwards and will eventually either be ripped apart by gravitational forces, or impact Mars and be destroyed entirely.

This will likely happen some time in the next 30–50 million years.

If Phobos is ripped apart, the leftover debris could form a ring system around the planet, much like Saturn's rings.

This is in contrast to Earth's Moon, which, say scientists, is actually moving away from Earth at a distance of about 3.8cm per year.

Phobos forming a ring system

Because Phobos is fractured and made up of porous rubble, rather than crashing into the Red Planet, the moon could be torn apart in its atmosphere, potentially creating rings around Mars, like those around Saturn, that could last from one to one hundred million years.

In 2015, two scientists at the University of California, Benjamin Black and then-graduate student Tushar Mittal, published a study that said the largest chunks of Phobos would crash into the Red Planet and create craters on the Martian surface.

Much of the debris would remain in Mars's orbit and circle the planet for millions of years before dropping to the surface in moon showers.

Mars's other moon, Deimos, would remain.

"While our Moon is moving away from Earth at a few centimetres per year, Phobos is moving toward Mars at a few centimetres per year, so it is almost inevitable that it will either crash into Mars or break apart," Black said.

"One of our motivations for studying Phobos was as a test case to develop ideas of what processes a moon might undergo as it moves inward toward a planet."

About the study

Black and Mittal examined data of fractured rocks on Earth and meteorites that have struck Earth that have a density and composition similar to Phobos.

They also looked at results from simulations of the Stickney impact crater on Phobos, which formed when a rock smashed into the Martian moon.

The crater is huge, spanning about one sixth of the lunar circumference.

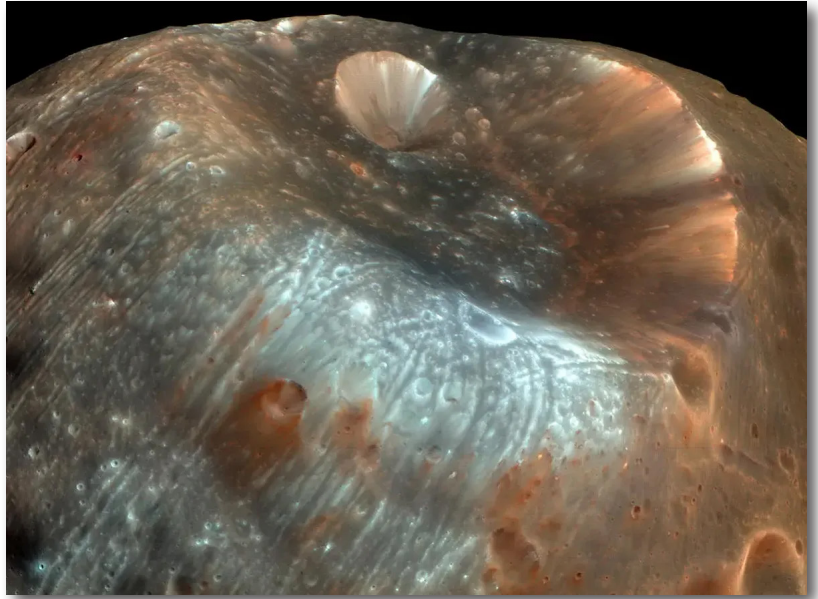
The duo then modelled the predicted evolution of the ring that might form around Mars following Phobos's demise.

"If Phobos broke apart at 1.2 Mars radii, about 680 kilometres above the surface, it would form a really narrow ring comparable in density to that of one of Saturn's most massive rings," Mittal said.

"Over time it would spread out and get wider, reaching the top of the Martian atmosphere in a few million years, when it would start losing material because stuff would keep raining down on Mars."

It is, however, not clear whether the rings would be visible from Earth, but they might reflect enough light to make Mars appear brighter.

"Standing on the surface of Mars a few tens of millions of years from now, it would be pretty spectacular to watch," Black said.



Stickney Crater is the largest crater on Mars's moon Phobos. Credit: NASA/JPL-Caltech/University of Arizona

14 things new stargazers should know

New to astronomy? Here are some things you'll notice in the night sky as you spend your first year stargazing.

From [BBC At Night](#) by Jamie Carter

If you're new to astronomy, you might be wondering where to start. It can be daunting stepping out under the night sky for the first time with the intention of learning your way around the stars and constellations, looking out for planets and trying to get to know all about the phases of the Moon.

This can be especially difficult if you don't have any more experienced amateur astronomers to help, or maybe you're wondering whether you will be able to see anything at all without an expensive telescope (spoiler: you will!)

Beginners' books and guides can be a great introduction to astronomy, but nothing beats experience. The more you stargaze, the more you'll learn. Here are some things you'll become aware of in your first year of observing.

For more advice, read our guides on how to stargaze and astronomy for beginners, or our pick of the best telescopes for beginners

1. There's an 'observing window' each month. Bright moonlight is a big light polluter, so it pays to keep track of the Moon's movements and phases. From about four days after new Moon, our lunar neighbour grows from a slim crescent to a bright orb that blots out stars right up until about six days after full Moon, after which it doesn't rise until the early hours.

As a result, there's a window of about 12 days surrounding new Moon when you're assured of a dark Moonless sky that is ideal for stargazing.

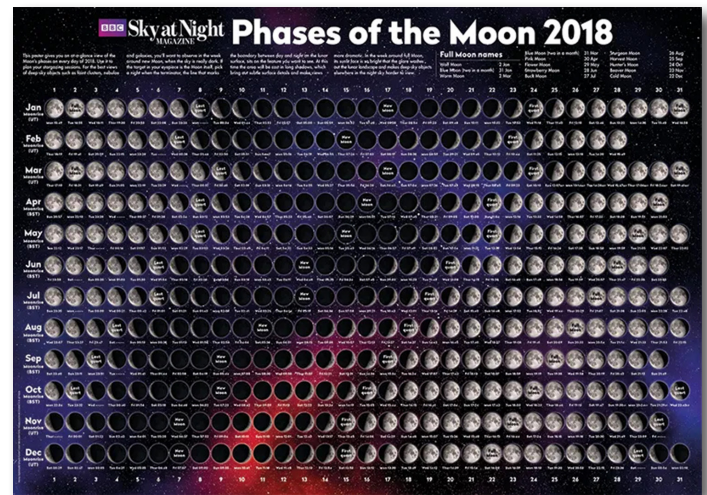
2. Find that unmissable 'smudge' in the winter night sky. Does a bright blob always catch your eye when you're out stargazing in autumn and winter? It's almost certainly the Pleiades (M45), a cluster of stars 440 light-years distant that's also called the Seven Sisters.

It's a young cluster of stars just 100 million years old. Even with the naked eye you should be able to make out about five or six of its stars forming the shape of a mini Plough.

HOW TO SEE IT: Low in the east at dusk in November, the Pleiades is a gem of the winter night sky. Part of the constellation of Taurus, it's visible every night until May.

3. Night vision makes stargazing much easier. As your eyes grow accustomed to darkness, your pupils dilate and allow in more light. It's why patience is so important when stargazing.

HOW TO GET IT: Keep away from all bright lights for at least 20 minutes (yes, that absolutely does include your smartphone!) and, if you do need to use illumination in the field (to read or make notes), use a dim, red light.



4. Observing the full Moon is best done at moonrise. Most beginners presume that the best time to observe the Moon is when it's high in the night sky, but at that point it's way too bright. Instead, find out the exact time of moonrise on the night of the full Moon and watch our satellite appear on the horizon during dusk in a gorgeous pale orange colour.

HOW TO SEE IT: Get somewhere reasonably high with a clear view of the eastern horizon at dusk on the night of the full Moon.

5. Light pollution can be helpful. A dark sky full of stars is an incredible sight, but light pollution isn't always a bad thing. When you're trying to learn the shapes made by the main, bright stars of constellations, the fact that the background of thousands of stars is 'missing' because of urban lighting can actually be useful.

So for now learn to live with light pollution. You'll grow to hate it soon enough.

HOW TO AVOID IT: If you're stargazing from an urban area, stand in the shadow of a building where there are no streetlights or other lights directly in your field of view. [Find out more in our guide to fighting light pollution.](#)

6. The changing sky. As Earth orbits the Sun, the positions of stars change slightly, rising in the east four minutes earlier each day. Consequently, the entire night sky appears to shift forwards by four minutes each night. You most likely won't notice this if you spend a few consecutive nights stargazing at the same time of night, but over the course of a month it's a two-hour difference. So stars rising at 10pm in October can be seen at 8pm by November.

HOW TO SEE IT: Look at the sky at a completely different time of night than you're used to. In fact, if you stargaze at 2am in October you're actually looking at the same night sky that will be visible at 8pm in February. So it doesn't actually take a year to observe all the seasonal stars and constellations, after all.

7. Pick your meteor-spotting sessions carefully. The thought of shooting stars 'raining down' is enough to excite any stargazer, but in practice many of the minor meteor showers can be a let-down.

Firstly, it's quite often cloudy on 'peak' night. Secondly, the number of meteors you can see in an hour of peak activity is changeable.

Thirdly, strong moonlight and light pollution can completely wipe out most of them.



HOW TO SEE THEM: Minor meteor showers such as the Lyrid meteor shower, Orionids and Leonids produce at most 10-20 shooting stars per hour, and of those far fewer are likely to be easily visible.

Their peak nights are best treated as great nights to go general stargazing, with the added bonus of seeing a few shooting stars.

Only the year's major meteor showers – the Perseid meteor shower in August and the Geminid meteor shower in December – are worth a dedicated trip to a dark sky site. [When is the next meteor shower?](#)

8. The Milky Way is only overhead in summer. That bright core of our Galaxy that you always see in photographs is only visible overhead during summer, when Earth is facing towards the centre of the Milky Way about 75,000 lightyears away. In winter, we're looking outward into deep space.

HOW TO SEE IT: Look southeast after dusk in June, July and August from a dark sky site. [Here's a guide to seeing the Milky Way.](#)

9. Some stars are visible all year long. Earth's northerly axis points roughly to Polaris, the North Star, which appears stationary in the night sky as all other stars in the northern sky appear to revolve around it.

The two close star patterns of the Plough and Cassiopeia are thus always visible to stargazers in the northern hemisphere. In the rest of the northern hemisphere sky, stars rise in the east and set in the west.

Further south, there's a whole hemisphere of stars and constellations that we, at our northerly altitude, never get to see.

HOW TO SEE IT: Look north at any time of year to find Polaris between the Plough and Cassiopeia (though in autumn and spring they can get lost on the horizon). If you stargaze at the same time of night throughout the year, you'll see that stars and constellations are each visible for six months, during which they shift slowly from east to west.

For the rest of the year, they're only 'up' during daylight.

10. Satellites are a regular sight. You don't have to stargaze for long before you see a satellite whizz across the night sky. During an hour's stargazing you can see dozens, all of which are over 6m in length and in a low-Earth orbit around 160-640km up.

You're looking at reflected sunlight, so it's a constant light unlike the flashes from aircraft.

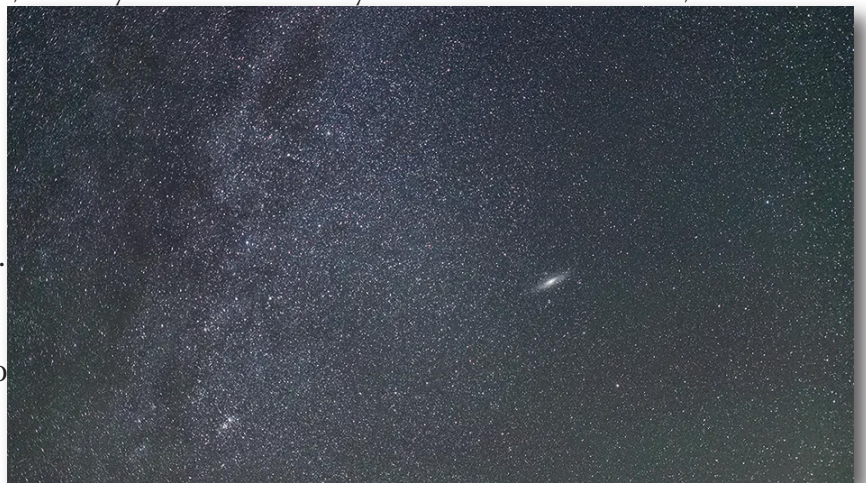
HOW TO SEE THEM: You'll see more satellites just after dusk and just before dawn, though in the UK summer the Sun doesn't sink as far below the horizon, so satellites can be seen all night.

11. Travel north for a better chance of seeing aurora. The result of electrically charged particles ejected from the Sun interacting with Earth's magnetic field and atmosphere, the Northern Lights, or Aurora Borealis, move in an oval shape around the Arctic Circle on the night-side of Earth.

These aurorae wax and wane from north to south, so they can occasionally be seen from Scotland, northern England and north Wales.

HOW TO SEE IT: If you want to maximise your chances, take a trip to a place within the latitudes of 64° and 70° north between October and March: places such as Iceland, northern Norway, Lapland in Finland, Sweden or Canada.

12. Your peripheral vision is powerful. The human eye's peripheral vision is very sensitive to brightness, so look slightly to the right of a star cluster, nebula or galaxy to see its glow. Conversely, when observing a star or planet, look



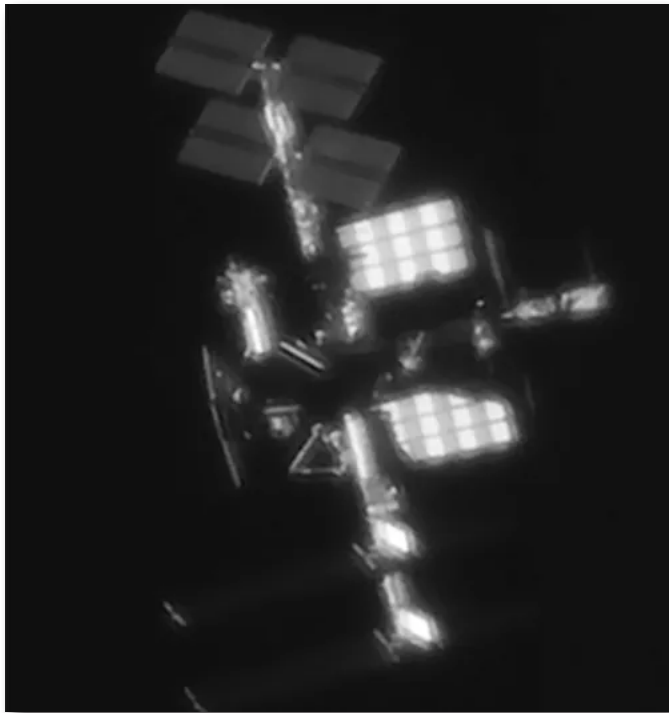
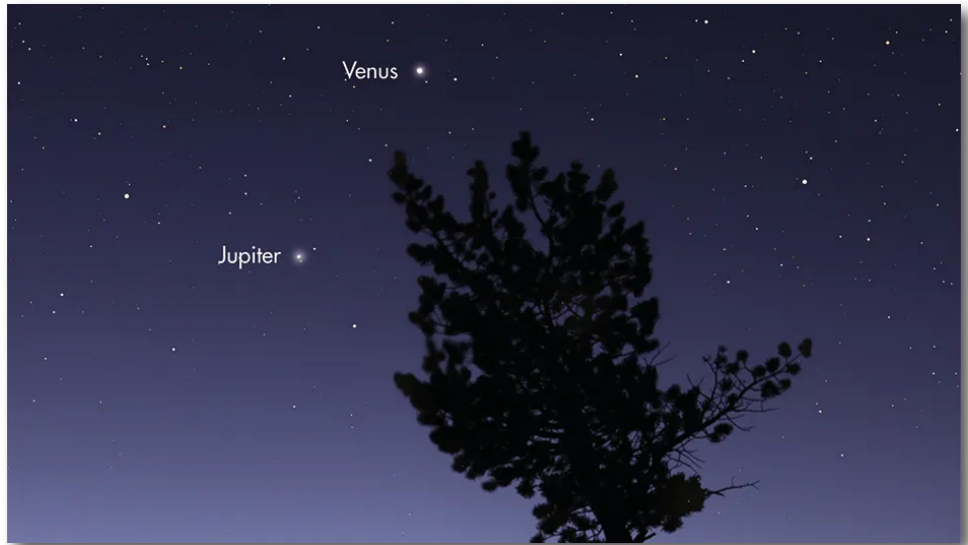
directly at it to see colour.

HOW TO SEE IT: Look just above the Pleiades for a good lesson in this 'averted vision' technique, which works just as well with the Orion Nebula (M42), the Andromeda Galaxy (M31) and any star cluster. For more on this, read our guide on how to see the Andromeda Galaxy.

13. Planets are very easy to find. The Sun and the planets appear to move across the sky on roughly the same path, which reveals that all the planets in the Solar System orbit the Sun in a virtually flat disc.

This is called the ecliptic, and it's here that you'll find the planets close by. The Moon also roughly follows the ecliptic.

HOW TO SEE IT: The ecliptic stretches from the point on the eastern horizon where the sun rises to where it sets in the west; look to the south after dark and trace the position of the planets. Since Mercury and Venus are inner planets, they are only visible in the west soon after dusk, or before dawn. [More on how to find the planets.](#)



14. Spot the space station moving west to east. If you see a bright light rise roughly in the west, get extremely bright and then disappear in the eastern sky, you probably just saw the International Space Station (ISS) or, rather, its huge solar panels reflecting sunlight.

The ISS orbits Earth 16 times each day at 27,600km per hour, which is around 8km per second.

HOW TO SEE IT: You can only see the ISS when it's crossing overhead just after dusk and just before dawn. If you do see it soon after dark, wait 92 minutes and you'll probably see it again.



What's Going On in the SIG Group?

PLEASE, PLEASE take you time while viewing the astro photographs on the following pages. I am constantly amazed at the incredible works of art my fellow astrophotographers are producing! Included below are nine galaxy images from Dick Cogswell, taken on his immense light buckets! I'm officially dubbing Dick the "Galaxy King!".

I'm equally impressed with the images Ray Bratton has produced and reprocessed since learning the PixInsight software. For years Ray was dedicated to using APP (Astro Pixel Processor), which is a good software, but PixInsight is the Photoshop of astro images.

Also included below is John Udarts amazing image of M42 The Great Orion Nebula, everyone's first target with a new scope or as a beginner. John is by no means a beginner but he does have a new OTA and has it dialed in perfectly. I want to thank John for his willingness to help other Astro SIG members (as well as myself) and for presenting at the Feb. SIG meeting on his PixInsight workflow.

These examples are what this Astro SIG group is really all about, helping each other, encouraging each other, fellowship and friendship. Thanks to everyone who is involved!

Now, to the newbies, if you truly want to learn astrophotography, get involved in the SIG group. Join the email list, come to the meetings and ask a bunch of questions!

Our next Astro SIG meeting is March 18th at 7pm, I hope you can join us.

Here's the link for the Zoom call. Occasionally this link may change so check the monthly newsletter for the most accurate link.

<https://zoom.us/j/95463483537?pwd=6EprbaLEuVacLvRgBTVxehkTGh1WSP.1>

Meeting ID: 954 6348 3537

Passcode: 052283



Astro SIG Images



Haley's Coronet NGC 1532 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 179 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: Haley's Coronet, is a nearly edge-on barred spiral galaxy located approximately 50 million light-years away in the constellation Eridanus. The galaxy spans 200,000 light years, and was discovered by James Dunlop on 29 October 1826. NGC 1532 has several dwarf companion galaxies, and is caught in a lopsided tug of war with the amorphous dwarf galaxy NGC 1531. The tidal forces from this interaction have created unusual plumes above the disk of NGC 1532 (seen at 2 o'clock). Note also the long arm extending to the upper right. This object is difficult to image because it is largely a Southern Hemisphere object and here barely rises to 30 degrees above the horizon.



NGC 660 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 134 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: NGC 660 is a rare form of galaxy known as a polar-ring galaxy. It is 45 million light years away in the constellation Pisces and is a member of the M74 Group. In this galaxy one ring of bright stars, gas, and dark dust appears nearly horizontal, while another similar but shorter ring runs diagonally to the upper right. This belt of gas and stars around its center was ripped from a nearby neighbor during a clash about one billion years ago. It may have first started as a lenticular or disk galaxy and this material could have become "strung out" to form a rotating ring. Thus this image is not a single dynamic body but either the aftermath of one galaxy piercing the center of another or the remains of a furious tidal struggle between two galaxies that shattered one galaxy and scattered its dust and gas into a 40,000-light-year-long ring.

The first polar ring galaxy was observed in 1978 and only around a dozen more have been discovered since then, making them something of a cosmic rarity.

There are at least a dozen faint galaxies in the background.



NGC 1097 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 139 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: NGC 1097 is a barred spiral galaxy about 45 million light years away in the constellation Fornax. It is a severely interacting galaxy with obvious tidal debris and distortions caused by interaction with the companion galaxy NGC 1097A (at 5 o'clock).

It was discovered by William Herschel on 9 October 1790.

NGC 1097 is also a Seyfert galaxy. Deep photographs revealed four narrow optical jets that appear to emanate from the nucleus. The optical jets are composed of stars. The failure to detect atomic hydrogen gas in the jets (under the assumption that they were an example of tidal tails) led to the current interpretation that the jets are actually the shattered remains of a cannibalized dwarf galaxy.



The Butterfly Nebula - NGC 2346 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 170 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: NGC 2346 is a planetary nebula near the celestial equator in the constellation of Monoceros. The nebula is bright and conspicuous with a visual magnitude of 9.6, and has been extensively studied. Among its most remarkable characteristics is its unusually cool central star, which is a spectroscopic binary, and its unusual shape. When one of the two stars in the central binary evolved into a red giant, it engulfed its companion, which stripped away a ring of material from the larger star's atmosphere. When the red giant's core was exposed, a fast stellar wind inflated two 'bubbles' from either side of the ring.



The Needle Galaxy - NGC 4565 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 129 4-minute exposures in LRGBHa.

Processing Software: APP, PI and PS

Here's the story: NGC 4565, the Needle Galaxy, is an edge-on spiral galaxy about 30 to 50 million light-years away in the constellation Coma Berenices. It is a giant spiral galaxy more luminous than the Andromeda Galaxy. First recorded in 1785 by William Herschel, it got its nickname because his sister Caroline, also an astronomer in her own right, was in the sitting room doing needlepoint when he first observed it.

Much speculation exists in literature as to the nature of the central bulge. Its exponential shape suggests that it is a barred spiral galaxy. Studies with the help of the Spitzer Space Telescope not only confirmed the presence of a central bar but also showed a pseudobulge within it as well as an inner ring.

NGC 4565 has at least two satellite galaxies, one of which is interacting with it. It has a population of roughly 240 globular clusters, more than the Milky Way.



M83 Southern Pinwheel by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 2750mm f/l

Mount: AP 1100AE

Exposures: 164 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: Messier 83, also known as the Southern Pinwheel Galaxy and NGC 5236, is a barred spiral galaxy approximately 15 million light-years away in the constellation borders of Hydra and Centaurus. Nicolas-Louis de Lacaille discovered M83 on 17 February 1752 at the Cape of Good Hope.

It is one of the closest and brightest barred spiral galaxies in the sky, and is visible with binoculars. It has a diameter at about 118,000 light-years. Its nickname of the Southern Pinwheel derives from its resemblance to the Pinwheel Galaxy (M101)



NGC 2997 by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 101 4-minute exposures in LRGBHa.

Processing Software: APP, PI and PS

Here's the story: NGC 2997 is a face-on unbarred spiral galaxy about 40 million light-years away in the faint southern constellation of Antlia.

The galaxy was discovered March 4, 1793 by German-born astronomer William Herschel. J. L. E. Dreyer described it as, "a remarkable object, very faint, very large, very gradually then very suddenly bright middle and 4 arcsec nucleus. Although faint, this is the brightest galaxy of the NGC 2997 group of galaxies, and was featured on the cover of the first edition of Galactic Dynamics by James Binney and Scott Tremaine.

This is a grand-design galaxy with a symmetrical, two-armed form. It is inclined at an angle of 40° to the line of sight from the Earth, with the major axis aligned along a position angle of 110° , and I am inclined to agree. The arms host a series of dusty knots that are star-forming regions being generated through gas compression from density waves. At the core, the arms converge to form a circumnuclear ring with symmetrically-placed hot spots containing super star clusters.



NGC 3521 The Bubble Galaxy by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

Exposures: 124 4-minute exposures in LRGBHa

Processing Software: APP, PI and PS

Here's the story: NGC 3521 is a flocculent intermediate spiral galaxy located in the constellation Leo. Its velocity with respect to the cosmic microwave background is 1167 ± 26 km/s, which corresponds to a Hubble distance of 56.1 million light years. However, 26 non-redshift measurements give a much closer distance of 37.17 million light years,

The galaxy was discovered by German-British astronomer William Herschel on 22 February 1784.

NGC 3521 has a trace of a bar structure, a weak inner ring, and moderate to loosely wound arm structure. The bar structure is difficult to discern, both because it has a low ellipticity and the galaxy is at a high inclination of 72.7° to the line of sight. Its relatively bright bulge is nearly $3/4$ the size of the bar, which may indicate the former is quite massive. The nucleus of this galaxy is classified as an HII LINER, as there is an H II region at the core and the nucleus forms a low-ionization nuclear emission-line region.

There is a massive amount of glow radiating out past the inner arms, especially at 10, 12 and 8 o'clock, suggesting it might have had a close encounter with another galaxy, possibly the small one in the background at 3 o'clock, which also shows distortion.



NGC2244 Rosette Nebula by Ray Bratton

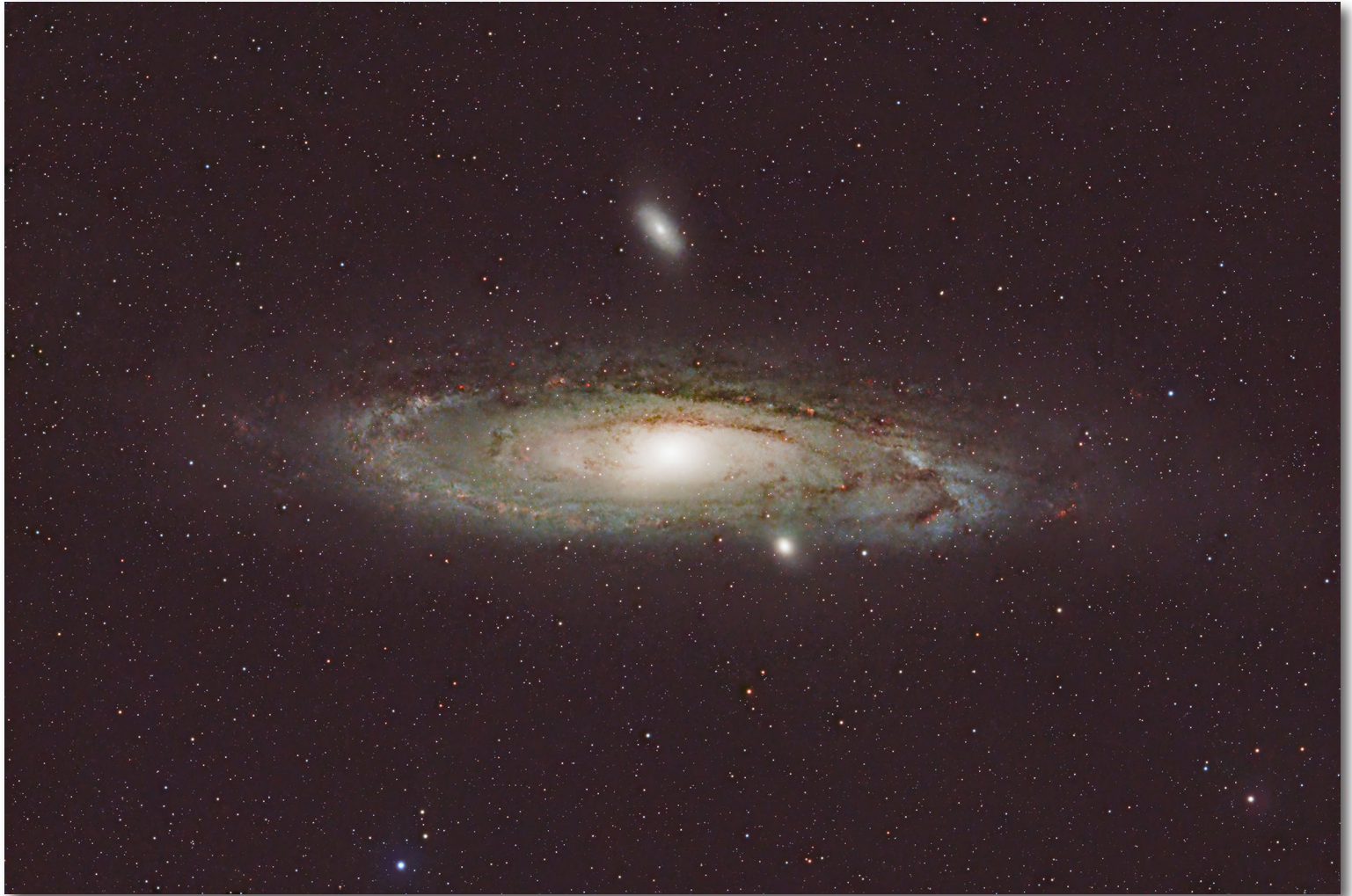
Brand/Type of Telescope/Lens: William Optics Zenithstar 61 w/flattener, 360mm

Mount: EQ6R Pro

Exposures: ASI6200MC duo, ASIAIR+, Optolong Quad filter, 24 300 second (2 hours),

Processing Software: Pixinsight & Photoshop

Here's the story: First set of NEW data processed with Pixinsight.



ANDROMEDA GALAXY M31 by Ray Bratton

Brand/Type of Telescope/Lens: William Optics Zenithstar 61 w/flattener, 360mm

Mount: EQ6R Pro

Exposures: ASI6200MC duo, ASIAIR+, 11 300 second images (55 minutes),

Processing Software: RE-PROCESSED WITH Pixinsight & Photoshop

Here's the story: This was taken in Pie Town, New Mexico October 18, 2023 (Bortle 1) at the ESSP 2023. It was re-processed with Pixinsight & Photoshop. It shows what a truly dark sky does for this short 55 minute image using Pixinsight.



Cone Nebula & Christmas Tree Cluster NGC2264 by Ray Bratton

Brand/Type of Telescope/Lens: Explore Scientific 127 FCD100 Triplet, Hotech flattener, 952mm

Mount: EQ6R Pro

Exposures: ASI294MC Pro, ASIAIR+, 27 300 second images (2.25 hours), Optolong UHC

Processing Software: RE-PROCESSED WITH Pixinsight & Photoshop

Here's the story: This was taken in Big Cypress, Florida - 2/22/2023. It was re-processed with Pixinsight & Photoshop.



M42_Orion_&_M43_Running_Man from Fort Myers, FL on 2/16/2023 by Ray Bratton

Brand/Type of Telescope/Lens: Explore Scientific 127 Triplet FCD100, 952mm

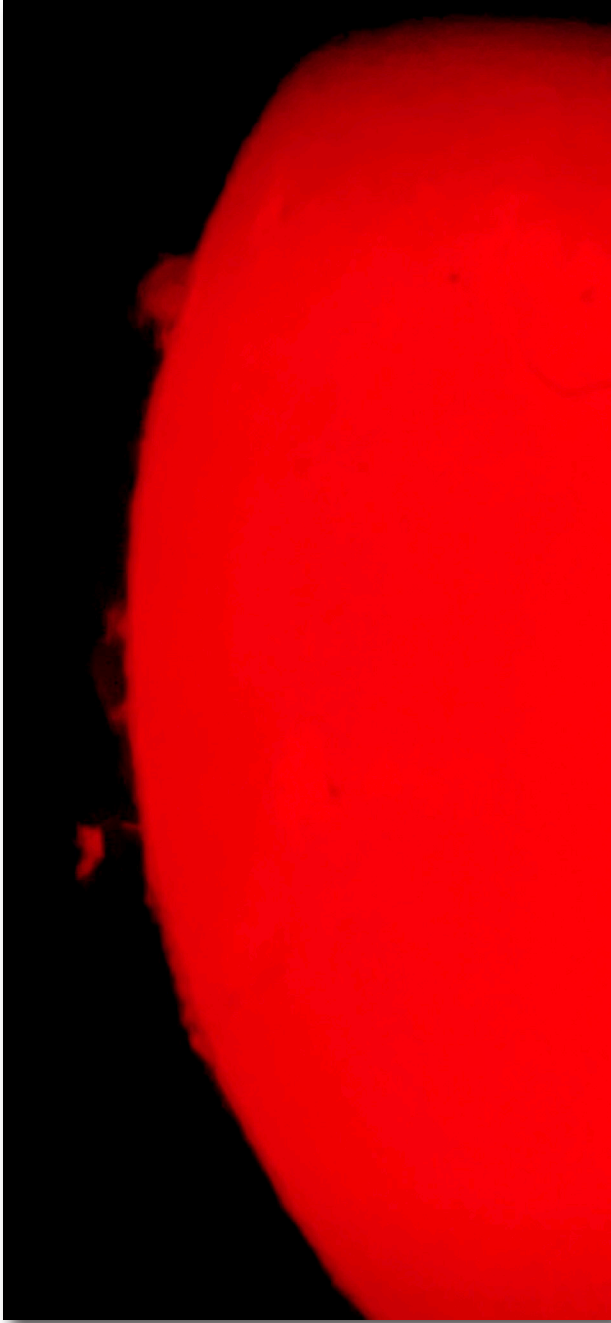
Mount: EQ6P Pro

Exposures: 334 30 second (2.75 hours), ASI294MC Pro with Optolong L-Enhance filter with ASIAIR+

Processing Software: Re-processed with Pixinsight and Photoshop

Here's the story:

After numerous different exposures of M42/M43, I decided on 30 seconds and shot 334 30 second images. I recently re-processed the 30 second images with Pixinsight.



Sun by Tim Lilly sun

Brand/Type of Telescope/Lens: Coronado 60mm

Mount: Atlas EQ-G

Exposures: Single shot I phone 13

Processing Software: In phone processing

Here's the story: The sun has always been a favorite of mine because it's ever changing . Every day is a new sight .93,000,000 miles from earth ,plus or minus . I bought the new 3axis cell phone holder from Celestron . Works great allowing perfect alignment



The Orion Nebula by JOHN UDART

Brand/Type of Telescope/Lens: Stellarvue SVX102T-RA Raptor, 714mm, ASI2600MC Duo

Mount: Sky-Watcher EQ6-R Pro

Exposures:

178 @ 120 seconds

275 @ 30 seconds

Integration time: 8.2 hours

Optolong L-Pro Filter

Processing Software: PixInsight

Here's the story: The Orion Nebula (M42) is one of the most famous deep-sky objects in astronomy and, at just 1,500 light-years away, is the closest major star-forming region to Earth. It is a gigantic cosmic cloud of dust and gas where numerous new stars are being formed. The bustling stellar nursery is brimming with towering pillars of gas and dust that are home to fledgling stars. The entire scene is sculpted by stellar winds ejected by young stars that also emit powerful ultraviolet light. This nebula is a perennial favorite of mine that, like a fine wine, gets better with every year that passes.



NGC 2841 - The Tiger Eye Galaxy by Dick Cogswell

Brand/Type of Telescope/Lens: C-14 Edge at 3950mm f/l

Mount: AP 1100AE

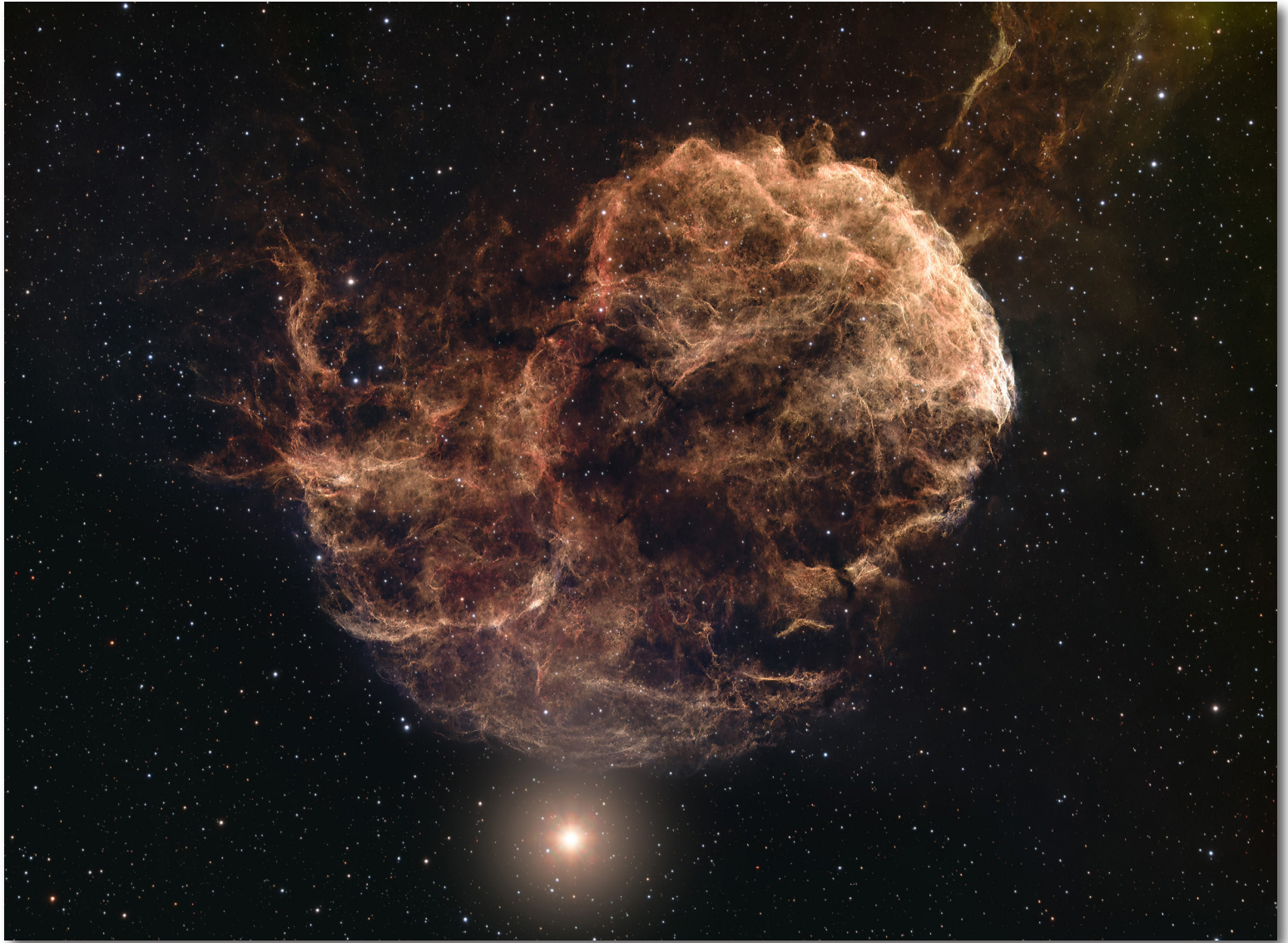
Exposures: 137 4-minute exposures in LRGBHa.

Processing Software: APP, PI and PS

Here's the story: NGC 2841 is an unbarred spiral galaxy in the northern circumpolar constellation of Ursa Major. It was discovered on March 9, 1788 by William Herschel. J. L. E. Dreyer, author of the New General Catalogue, described it as, "very bright, large, very much extended 151° , very suddenly much brighter in middle equal to 10th magnitude star". Initially thought to be about 30 million light-years distant, a 2001 Hubble Space Telescope survey of the galaxy's Cepheid variables determined its distance to be approximately 46 million light-years. This is the prototype for the flocculent spiral galaxy, a type of spiral galaxy whose arms are patchy and discontinuous.

The properties of NGC 2841 are similar to those of the Andromeda Galaxy. It is home to a large population of young blue stars, and a few H II regions. Its disk of stars can be traced out to a radius of around 228,000 light years. This disk begins to warp at a radius of around 98,000 light years, suggesting the perturbing effect of in-falling matter from the surrounding medium.

The rotational behavior of the galaxy suggests there is a massive nuclear bulge, suggesting a recent interaction with a smaller galaxy.



IC 443 - The Jellyfish Nebula by Mike Jensen

Brand/Type of Telescope/Lens: ES 127

Mount: Sky-Watcher EQ6-R Pro

Exposures: 20 each R,G,B @ 300 secs for stars. 89 Ha, 51 Oiii, 67 Sii all at 300 secs. Total integration time: 22.25 hours.

Processing Software: PixInsight, Photoshop

Here's the story: This one appeared in my field of view on January 28th. Amazingly I had a BUNCH of nights to work on it and collect the needed data. In this image, you're just getting the main subject, but there's a LOT more of this area to see. I would like to re-image it next year using a wider field telescope. I worked very hard in Pixinsight to get the desired coloring, I used Photoshop to work through the immense light created by the HUGE star at the bottom.

C 443 is a galactic supernova remnant in the constellation Gemini. On the plane of the sky, it is located near the star Eta Geminorum. Its distance is roughly 5,000 light years from Earth. IC 443 may be the remains of a supernova that occurred 30,000 - 35,000 years ago. [More info, click here.](#)



SH 2 298 - Thor's Helmet by Mike Jensen

Brand/Type of Telescope/Lens: ES 127

Mount: Sky-Watcher EQ6-R Pro

Exposures: 45 Ha, 29 Oiii, 3 Sii all at 300 secs. Total integration time: 6.25 hours.

Processing Software: PixInsight, Photoshop

Here's the story: I rarely shoot to the south because of some higher trees in my shooting area (back yard). Thor's Helmet appeared on Feb 7th during the full moon cycle. I had been looking for something to image since the skies are ALWAYS clear during the full moon! This one popped up. Even for my ES 127, it was pretty small in the screen. I made a plan to get as much data as I could, which wasn't much. BUT, it was enough to get a nice image during the FULL moon cycle! This target was only in my back yard's field of view for about 4 hours a night so it took six nights. I shot a 7th, but had some focusing issues on my auto programmed sequence. Now to the cool stuff. Thor's Helmet, is an emission nebula in the constellation Canis Major. It's a giant cloud of gas and dust that glows due to a nearby star ionizing the gas. It's approximately 30 light years in size, and approximately 11,960 light years away from Earth. [More info, click here.](#)



The Moon by Mike Jensen

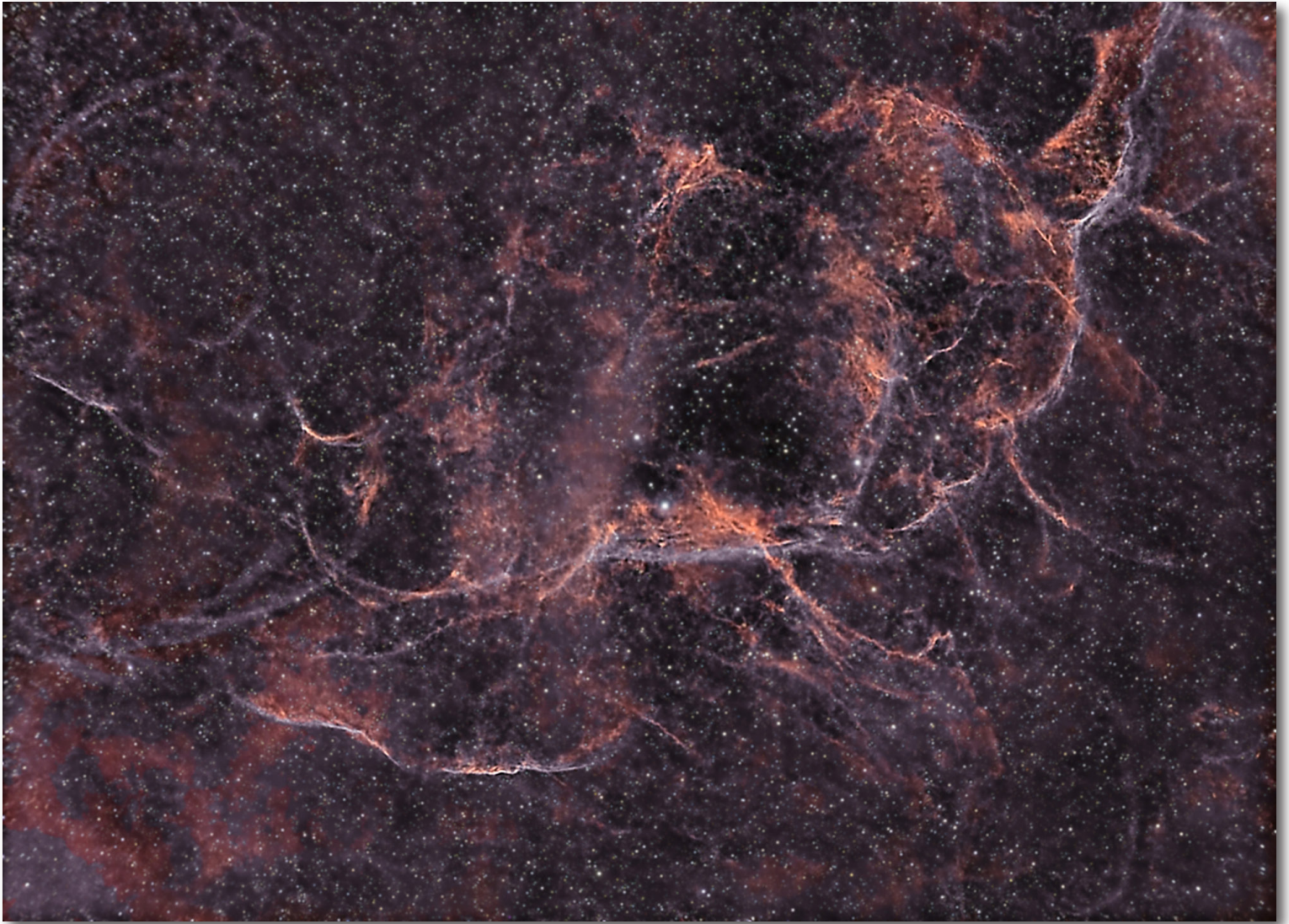
Brand/Type of Telescope/Lens: ES 127

Mount: Sky-Watcher EQ6-R Pro

Exposures: 2 30 second videos

Processing Software: PixInsight, Photoshop

Here's the story: This was shot on the night of the full moon on Feb. 11th. I don't have the right gear to photograph the moon the way I would like, so I shot a top half and a bottom half and blended them together to get some really good detail.



Vela Supernova remnant by Mario E MOTTA

Brand/Type of Telescope/Lens: 90 mm F5 refractor

Mount: ioptron 70

Exposures: 36, 12 each of NB Ha, O3, S2, with ZWO 6200 camera

Processing Software: Pixinsight

Here's the story: A very large nebula in Vela, size of 8 full moons, thus I used my smaller refractor for its wide field to capture this. It is faint, a SN event 11,000 years ago, the shock waves still expanding which is what we see now. 900 LY away.



The Whale and The Crowbar - Irregular Galaxies by Scott Cruzen

Brand/Type of Telescope/Lens: Astro-Tech 130mm F7 EDT APO Triplet Refractor 910mm FL with 1x Flatteners
Mount: Skywatcher EQ6-R Pro, ASIAir Plus

Exposures: ASI2600MM Pro Mono Camera

75 x 240sec R

63 x 240sec G

53 x 240sec B

51 x 240 sec Ha

Processing Software: SiriL/SiriLic, GIMP, DarkTable, Topaz

Here's the story:

NGC4631 and NGC4656 are either the Whale and the Crowbar, or the Herring and the Hockey Stick, depending on what reference you use. This image is from the past couple of weeks when we had a few almost half decent nights for imaging, although with a very bright nearly full moon not far off the target line and pretty poor transparency. These two irregularly-shaped galaxies lie about 30 million light years away in Canes Venatici. The small elliptical galaxy adjacent to the Whale is NGC4627. The galaxies are distorted due to gravitational interaction that is relatively recent. The image is an RGB composite with Ha added with continuum subtraction.



M 1 - Crab Nebula by Reggie Blackmon

Brand/Type of Telescope/Lens: ZWO Seestar S50/50mm/250mm FL

Mount: Alt-AZ

Exposures: 5hrs Integration (1800 10s subs), OIII/Ha filter

Processing Software: Stacking/Pre-processing/Processing - Sirilic/Siril and GraXpert

Here's the story: Messier 1, better known as the Crab Nebula, was discovered by English astronomer John Bevis in 1731. Later, Charles Messier mistook it for Halley's Comet, which inspired him to create his catalog of objects. In 1054, Chinese astronomers took notice of a "guest star" that was, for nearly a month, visible in the daytime sky. The "guest star" they observed was actually a supernova explosion, which gave rise to the Crab Nebula, a six-light-year-wide remnant of the violent event. With an apparent magnitude of 8.4 and located 6,500 light-years from Earth in the constellation Taurus, the Crab Nebula can be spotted with a small telescope and is best observed in January. The filaments are the tattered remains of the star which were expelled during the supernova explosion.

A rapidly spinning neutron star (the ultra-dense core of the exploded star) is embedded in the center of the nebula and ejects twin beams of radiation that make it appear to pulse 30 times per second as it rotates.

Imaging :

I originally took 43 10 second subs back in October 2024 just because I was excited to try imaging another target but had no clue as to what I was really doing. My first target, like a lot of folks, was M 42. Anyway, since then I've added another 1757 subs and I thought I'd check on the progress.



NGC 7635 - Bubble Nebula (Starless) by Reggie Blackmon

Brand/Type of Telescope/Lens: ZWO Seestar S50/50mm/250mm FL

Mount: Alt-Az

Exposures: 2.5 hrs (10s subs)

Processing Software: Siril, GraXpert, SAS

Here's the story: One of the most intriguing objects in our Milky Way galaxy is a massive star trapped inside a bubble. Object NGC 7635, better known as the Bubble Nebula, is located about 7,100 light-years away in the Cassiopeia constellation.

Its star burns a million times brighter than our sun and produces powerful gaseous outflows called stellar winds that howl at more than four million miles per hour. Over time, the winds have pushed nearby gas and dust outward, forming a layer around the star that's denser in some areas than others. Based on the rate the star is expending energy, scientists estimate in 10 to 20 million years it will explode as a supernova. And the bubble will succumb to a common fate: It'll pop.

Imaging:

I started collecting data of this in November of 2024 and then set it aside. Recently, I came across some discussions on how, paradoxically, it is sometimes easier to appreciate this impressive factory of activity in the nebula by seeing it without its stars, which have been digitally removed in this image.

February Meeting Minutes

Southwest Florida Astronomical Society Membership meeting of February 6, 2025 at the Caloosa Nature Center plus zoom in

President Risley opened the meeting promptly at 7 PM, thanked all 30 participants for attending (10 zoom and 20 in person), thanked Tom Klein for his computer assistance and asked Dan Dannenhauer to introduce tonight's program and speakers. Dan advised that he and Doctor Mario Motta, board certified cardiologist , dark and quiet skies author and UN once for outer space affairs accompanied by Tony Costanzo, teacher for 35 years and repairing telescopes since 1985 with 53 certifications from manufacturers will all three present an overview of the Winter Star Party.

Program: Dan stated that he and 296 attendees had great fun this January 27th until February 1st at the Scout Key just off Big Pine Key at mile marker 37.5.... Dan illustrated photos of daytime fun at the Conch cafe, Keys Fisheries, Boondocks, No Name Pub and other sites of Key Deer, the shoreline of the Atlantic Ocean and various views from his Seestar 50. Dan encouraged all to sign up for the February 16 - 22nd, 2026 Winter Star Party.

Mario Motta spoke of the history of the WSP, the quest speakers available and the Bortel 2 skies for viewing the Southern winter skies including, the Southern Cross, NGC 908, NGC 1365, NGC 2359, zNGC 2467, NGC 2736 and many more. Mario explained the rare sky views that are only available at the Keys and at this time for those members living outside of Florida. People from all over the world attend and encouraged his fellow members to consider 2026. Many questions were asked of Doctor Motta and all appreciated his presentation.

Tony Costanzo commented on how many problems arose out of Celestron products. That he had a vendor tent and repaired many on the spot. Tony viewed the many scopes that were at the WSP, big ones, Dobs, Steve Salloway's scope set up for planetary viewing for everyone to use for the planetary line up of Venus, Mars, Jupiter and Saturn. Tony rendered visions of the future in amateur astronomy by

stating that the old heavy scopes are giving way to the new smaller scopes such as the Seestar. All applauded and President Risley thanked the trio for their efforts.

Outreach Events: Tom Segur stated that the Charlotte County January event was held despite the 40 degree weather and attended by 90 plus people. Tom stated that the 1/11 event was canceled due to weather.

Brian Risley advised that there were 400 plus people at the January 25th Big Cypress Public Observing event. Brian stated that the January Seehawk party event was clouded out and canceled.

Upcoming Events:

Charlotte County: Tom Segur advised that the Sunseeker Resort is for sale and that Gilchrist Park has been repaired and open for the February 9th (9AM-Noon) monthly solar observing. Tom further stated that the FSW Moore Observing event will take place on February 28th.

Lee County: Brian Risley that the Big Cypress Observing event will take place on February 28th. Brian also advised that STEMtastic February 8th event will take place at the Caloosa Sound Convention Center between 10AM until 2PM. The borrowing Owl festival will take place on February 22nd from 10-4 at Rotary Park in Cape Coral. The Rotary Park Public Star Party will be from 6PM till 10PM on February 28th and given that conflict Brian cannot attend the Big Cypress event.

Officer and Committee Reports:

President: Brian Risley encourage Tony Costanzo to complete the annual financial audit as soon as possible. President Risley also asked members to assist in obtaining future speakers and thanked

Dan for filling March's program. Brian stated that there was donated equipment in the lobby for the use by

members. Brian said this equipment is not for resale as it was donated and that if you take it and don't use it, you are honor bound to return such for others to use.

Vice President: Mike Jensen asked the members to join him in the before monthly meeting dinner social event. He said that 7 members attended and discussed their monthly viewing issues. Mike further stated that light pollution was worsening and hopefully the streetlights and other Blue lights be curtailed. He further stated that the website and newsletter were under control.

Secretary: Dan Dannenhauer asked for approval of the January minutes, moved by John MacLean and seconded by Tony Costanzo passed unanimously.

Treasurer: John MacLean advised that the beginning balance was \$3,674 with an ending balance of 44,329 totaling now 136 members. No motion necessary as already reviewed and approved by the officers.

Program Coordinator: Dan Dannenhauer advised that Jonathan Talbot will speak at our March 6th meeting on "Tools You Need to know When Using Pixinsight". Neal Kleinman recommended him as Jon was a lecturer at the Winter Star Party and a 34 year member of the infamous Hurricane Hunter aviation squad. John MacLean will contact Jon and handle the zoom connection for our March meeting. John and Dan advised that they have other speakers scheduled for April and May and are still working on the order of presentation.

Adjourn: President Risley asked for other committee reports..... there were none and thus he asked for a motion to adjourn at 8:35PM. So moved by Tony Costanzo and seconded by Tom Segur passed unanimously. Dan Dannenhauer, secretary.